

ENTERED



OIPE

RAW SEQUENCE LISTING
PATENT APPLICATION: US/09/994,425

DATE: 08/18/2003
TIME: 13:42:45

Input Set : N:\CrF3\RULE60\09994425.raw.txt
Output Set : N:\CRF4\08182003\I994425.raw

SEQUENCE LISTING

1 (1) GENERAL INFORMATION:

2 (i) APPLICANT: Henry C. Chiu and Dennis J. Carlo
3 (ii) TITLE OF INVENTION: TARGETED DELIVERY OF GENES ENCODING
4 INTERFERON

5 (iii) NUMBER OF SEQUENCES: 13

6 (iv) CORRESPONDENT ADDRESS:

7 (A) ADDRESS: LAHIVE & COCKFIELD, LLP
8 (B) STREET: 60 STATE STREET, SUITE 510

9 (C) CITY: BOSTON

10 (D) STATE: MASSACHUSETTS

11 (E) COUNTRY: USA

12 (F) ZIP: 02109-1375

13 (v) COMPUTER READABLE FORM:

14 (A) MEDIUM TYPE: Floppy disk

15 (B) COMPUTER: IBM PC compatible

16 (C) OPERATING SYSTEM: PC-DOS/MS-DOS

17 (D) SOFTWARE: PatentIn Release #1.0, Version #1.25

18 (vi) CURRENT AFFILIATION DATA:

C--> 19 (A) APPLICATION NUMBER: US/09/994,425

C--> 20 (B) FILING DATE: 26-Nov-2001

21 (C) CLASSIFICATION:

22 (vii) PRIOR APPLICATION DATA:

23 (A) APPLICATION NUMBER: US/09/379,434

24 (B) FILING DATE: 25-Aug-1999

25 (A) APPLICATION NUMBER: 08,819,238

26 (B) FILING DATE:

27 (viii) ATTORNEY/AGENT INFORMATION:

28 (A) ELECTRONIC FILE NUMBER: 30,012

29 (C) REFERENCE/DOCKET NUMBER: TTI-143CPPC

30 (ix) TELECOMMUNICATION INFORMATION:

31 (A) TELEPHONE: (617)227-7400

32 (B) TELEFAX: (617)227-5941

33 (2) INFORMATION FOR SEQ ID NO: 1:

34 (i) SEQUENCE CHARACTERISTICS:

35 (A) LENGTH: 166 amino acids

36 (B) TYPE: amino acid

37 (C) TOPOLOGY: linear

38 (D) MOLECULE TYPE: peptide

39 (E) FRAGMENT TYPE: internal

40 (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 1:

41 Cys Asn Leu Pro Gln Thr His Ser Leu Gly Ser Arg Arg Thr Ieu Met

RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/994,425

DATE: 08/10/2003

TIME: 13:42:45

Input Set : N:\Crf3\RULE60\09994425.raw.txt

Output Set: N:\CRF4\08182003\I994425.raw

44 5 10 15
 45 Leu Leu Ala Gln Met Arg Arg Ile Ser Leu Phe Ser Cys Leu Lys Asp
 46 20 25 30
W--> 47 Arg His Asp Phe Gly Phe Pro Gln Glu Glu Phe Xaa Gly Asn Gln Phe Gln
 48 35 40 45
 49 Lys Ala Glu Thr Ile Pro Val Leu His Glu Met Ile Gln Gln Ile Phe
 50 55 60 65
 51 Asn Leu Phe Ser Thr Lys Asp Ser Ser Ala Ala Trp Asp Glu Thr Leu
 52 70 75 80
 53 Leu Asp Lys Phe Tyr Thr Glu Leu Tyr Gln Gln Leu Asn Asp Leu Glu
 54 85 90 95
 55 Ala Cys Val Ile Gln Gly Val Gly Val Thr Glu Thr Pro Leu Met Lys
 56 100 105 110
 57 Glu Asp Ser Ile Leu Ala Val Arg Lys Tyr Phe Gln Arg Ile Thr Leu
 58 115 120 125
 59 Tyr Leu Lys Glu Lys Lys Tyr Ser Pro Cys Ala Trp Glu Val Val Arg
 60 130 135 140 145
 61 Ala Glu Ile Met Arg Ser Phe Ser Leu Ser Thr Asn Leu Gln Glu Ser
 62 150 155 160
 63 Leu Arg Ser Lys Glu
 64 165
 65 (2) INFORMATION FOR SEQ ID NO: 1:
 66 (i) SEQUENCE CHARACTERISTICS:
 67 (A) LENGTH: 166 amino acids
 68 (B) TYPE: amino acid
 69 (D) TOPOLOGY: linear
 70 (ii) MOLECULE TYPE: peptide
 71 (v) FRAGMENT TYPE: internal
 72 (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 2:
 73 Cys Asp Ile Pro Glu Thr His Ser Leu Asp Asn Arg Arg Thr Leu Met
 74 1 5 10 15
 75 Leu Leu Ala Gln Met Ser Arg Ile Ser Pro Ser Ser Cys Leu Met Asp
 76 20 25 30
 77 Arg His Asp Phe Gly Phe Pro Gln Glu Glu Phe Asp Gly Asn Gln Phe
 78 35 40 45
 79 Gln Lys Ala Pro Ala Ile Ser Val Leu His Glu Leu Ile Gln Gln Ile
 80 50 55 60

81 -- -- -- --
 82 Leu Leu Asp Lys Phe Cys Thr Glu Leu Tyr Gln Gln Leu Asn Asp Leu
 83 85 90 95
 84 Glu Ala Cys Val Met Gln Gln Gln Arg Val Gln Gln Thr Pro Leu Met
 85 100 105 110
 86 Asn Ala Asp Ser Ile Leu Ala Val Lys Lys Tyr Phe Arg Arg Ile Thr
 87 115 120 125
 88 Leu Tyr Leu Thr Glu Lys Lys Tyr Ser Pro Cys Ala Trp Glu Val Val
 89 130 135 140
 90 Arg Ala Gln Ile Met Arg Ser Leu Ser Leu Ser Thr Asn Leu Gln Glu
 91 145 150 155 160

RAW SEQUENCE LISTING
PATENT APPLICATION: US/09/994,425

DATE: 08/18/2003
TIME: 13:42:45

Input Set : N:\Crf3\RULE60\09994425.raw.txt
Output Set: N:\CRF4\08182003\I994425.raw

```

94      Arg Leu Arg Arg Lys Glu
95          165
97 (2) INFORMATION FOR SEQ ID NO: 3:
98     (i) SEQUENCE CHARACTERISTICS:
99         (A) LENGTH: 6 amino acids
100        (B) TYPE: amino acid
101        (C) POLYPEPTIDE: linear
102 (ii) MOLECULE TYPE: peptide
103 (v) FRAGMENT TYPE: internal
104 (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 3:
105      Arg Cys Ilys Phe Ser Ser
106          1       5
107 (2) INFORMATION FOR SEQ ID NO: 4:
108     (i) SEQUENCE CHARACTERISTICS:
109         (A) LENGTH: 6 amino acids
110        (B) TYPE: amino acid
111        (C) POLYPEPTIDE: linear
112 (ii) MOLECULE TYPE: peptide
113 (v) FRAGMENT TYPE: internal
114 (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 4:
115      Asp Cys Cys Phe Ser Ser
116          1       5
117 (2) INFORMATION FOR SEQ ID NO: 5:
118     (i) SEQUENCE CHARACTERISTICS:
119         (A) LENGTH: 6 amino acids
120        (B) TYPE: amino acid
121        (C) POLYPEPTIDE: linear
122 (ii) MOLECULE TYPE: peptide
123 (v) FRAGMENT TYPE: internal
124 (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 5:
125      Arg Arg Ilys Phe Ser Ser
126          1       5
127 (2) INFORMATION FOR SEQ ID NO: 6:
128     (i) SEQUENCE CHARACTERISTICS:
129         (A) LENGTH: 6 amino acids
130        (B) TYPE: amino acid
131        (C) POLYPEPTIDE: linear
132
133 (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 6:
134      Lys Cys Lys Phe Ser Ser
135          1       5
136 (2) INFORMATION FOR SEQ ID NO: 7:
137     (i) SEQUENCE CHARACTERISTICS:
138         (A) LENGTH: 6 amino acids
139        (B) TYPE: amino acid
140        (C) POLYPEPTIDE: linear
141 (ii) MOLECULE TYPE: peptide
142 (v) FRAGMENT TYPE: internal

```

RAW SEQUENCE LISTING
PATENT APPLICATION: US/09/994,425

DATE: 08/18/2003
TIME: 13:42:45

Input Set : N:\Crf3\RULE60\09994425.raw.txt
Output Set: N:\CRF4\08182003\I994425.raw

148 (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 7:
149 Lys Arg Lys Thr Ser Ser
150 1 5
151 (2) INFORMATION FOR SEQ ID NO: 8:
152 (i) SEQUENCE CHARACTERISTICS:
153 (A) LENGTH: 6 amino acids
154 (B) TYPE: amino acid
155 (C) TOPOLOGY: linear
156 (ii) MOLECULE TYPE: peptide
157 (v) FRAGMENT TYPE: internal
158 (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 8:
159 Arg Arg Thr Thr Ser Ser
160 1 5
161 (2) INFORMATION FOR SEQ ID NO: 9:
162 (i) SEQUENCE CHARACTERISTICS:
163 (A) LENGTH: 6 amino acids
164 (B) TYPE: amino acid
165 (C) TOPOLOGY: linear
166 (ii) MOLECULE TYPE: peptide
167 (v) FRAGMENT TYPE: internal
168 (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 9:
169 Lys Arg Thr Ser Ser Ser
170 1 5
171 (2) INFORMATION FOR SEQ ID NO: 10:
172 (i) SEQUENCE CHARACTERISTICS:
173 (A) LENGTH: 6 amino acids
174 (B) TYPE: amino acid
175 (C) TOPOLOGY: linear
176 (ii) MOLECULE TYPE: peptide
177 (v) FRAGMENT TYPE: internal
178 (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 10:
179 Arg His Lys Thr Ser Ser
180 1 5
181 (2) INFORMATION FOR SEQ ID NO: 11:
182 (i) SEQUENCE CHARACTERISTICS:
183 (A) LENGTH: 6 amino acids
184 (B) TYPE: amino acid
185 *** DELETED MATERIAL ***
186 (v) FRAGMENT TYPE: internal
187 (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 11:
188 Arg Ile Lys Thr Ser Ser
189 1 5
190 (2) INFORMATION FOR SEQ ID NO: 12:
191 (i) SEQUENCE CHARACTERISTICS:
192 (A) LENGTH: 6 amino acids
193 (B) TYPE: amino acid
194 (D) TOPOLOGY: linear
195 (ii) MOLECULE TYPE: peptide

RAW SEQUENCE LISTING
PATENT APPLICATION: US/09/994,425

DATE: 08/18/2003
TIME: 13:42:45

Input Set : N:\Crf3\RULE60\09994425.raw.txt
Output Set: N:\CRF4\08182003\I994425.raw

202 (v) FRAGMENT TYPE: internal
 203 (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 12:
 204 Arg Lys Thr Phe Ser Ser
 205 1 5
 207 (2) INFORMATION FOR SEQ ID NO: 13:
 208 (i) SEQUENCE CHARACTERISTICS:
 209 (A) LENGTH: 166 amino acids
 210 (B) TYPE: amino acid
 211 (C) TOPOLOGY: linear
 212 (ii) MOLECULE TYPE: peptide
 213 (v) FRAGMENT TYPE: internal
 214 (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 13:
 215 Cys Asp Leu Ile Gln Thr His Ser Leu Gly Ser Arg Arg Thr Leu Met
 216 1 5 10 15
 217 Leu Leu Ala Gln Met Arg Arg Ile Ser Leu Phe Ser Cys Leu Lys Asp
 218 20 25 30
 W--> 219 Arg His Asp Phe Gly Phe Pro Gln Glu Phe Xaa Gly Asn Gln Phe Gln
 220 19 48 49
 221 Lys Ala Gln Thr Ile Pro Val Leu His Glu Met Ile Gln Gln Ile Phe
 222 50 55 60 65
 223 Arg Leu Phe Ser Thr Lys Asp Ser Ser Ala Ala Trp Asp Gln Thr Leu
 224 70 75 80
 225 Leu Asp Lys Phe Tyr Thr Glu Leu Tyr Gln Gln Leu Asn Asp Leu Glu
 226 85 90 95
 227 Ala Cys Val Ile Gln Gly Val Gly Val Thr Glu Thr Pro Leu Met Lys
 228 100 105 110
 229 Glu Asp Ser Ile Leu Ala Val Lys Lys Tyr Phe Arg Arg Ile Thr Leu
 230 115 120 125
 231 Tyr Leu Lys Glu Lys Lys Tyr Ser Pro Cys Ala Trp Glu Val Val Arg
 232 130 135 140 145
 233 Ala Glu Ile Met Arg Ser Phe Ser Leu Ser Thr Asn Leu Gln Glu Ser
 234 150 155 160
 235 Leu Arg Ser Lys Glu
 236 165

RAW SEQUENCE LISTING ERROR SUMMARY
PATENT APPLICATION: US/09/994,425

DATE: 08/18/2003
TIME: 13:42:46

Input Set : N:\Crf3\RULE60\09994425.raw.txt
Output Set: N:\CRF4\08182003\I994425.raw

Please Note:

Use of n and/or Xaa have been detected in the Sequence Listing. Please review the Sequence Listing to ensure that a corresponding explanation is presented in the <220> to <223> fields of each sequence which presents at least one n or Xaa.

Seq#:1; Xaa Pos.44
Seq#:13; Xaa Pos.44

VERIFICATION SUMMARY
PATENT APPLICATION: US/09/994,425

DATE: 08/18/2003
TIME: 13:42:46

Input Set : N:\Crf3\RULE60\09994425.raw.txt
Output Set: N:\CRF4\08182003\I994425.raw

L:19 M:220 C: Keyword misspelled or invalid format, [(A) APPLICATION NUMBER:]
L:20 M:220 C: Keyword misspelled or invalid format, [(B) FILING DATE:]
L:47 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:1 after pos.:32
L:219 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:13 after pos.:32

STATISTICS SUMMARY

PATENT APPLICATION: US/09/994,425

DATE: 08/18/2003

TIME: 13:42:46

Input Set : N:\Crf3\RULE60\09994425.raw.txt
Output Set: N:\CRF4\08182003\I994425.raw

Application Serial Number: US/09/994,425

Alpha or Numeric or Xml: Alpha

Application Class:

Application File Date: 11-26-2001

Art Unit: QIPE

Software Application: PatentIN1.0

Total Number of Sequences: 13

Total Nucleotides: 0

Total Amino Acids: 558

Number of Errors: 0

Number of Warnings: 2

Number of Corrections: 2

MESSAGE SUMMARY

220 C: 2 (keyword misspelled or invalid format)

341 W: 2 ((46) "n" or "Xaa" used)